

Monthly Progress Report

Submitted to: Mr. Frank Battaglia, Project Manager
 USEPA Region I
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Pursuant to: RCRA I-88-1088

Facility Site: Cranston, RI

Period Covered: August 1992 (25 July 1992 – 28 August 1992)*

Date Submitted: 10 September 1992

REC'D 9-9-92
F.B.

NAME: <u>Ciba Geigy</u>
I.D. NO.: <u>RIDAO124323</u>
FILE NO.: <u>02-9</u>
OTHER: _____

1.0 SUMMARY

This is the twenty-sixth monthly progress report. Six significant events occurred this month.

Hydrological Investigation. Reducing the bathymetric and sediment thickness data, and preparing the bathymetric/sediment thickness maps, were completed. Stage height measurements of the river continued. Analysis of the routine (weekly) water column monitoring samples (collected at the six sampling stations) for selected analytes continued.

Water Level Monitoring. Monthly groundwater level monitoring continued.

Data Validation. Validation of the PCB analytical data for surficial soil samples was completed; the results of the validation are presented in Attachment A.

Stabilization Investigation. The Stabilization Work Plan authoring team met on 7/30/92 to discuss reviews and schedules. Conditional approval of the outline for the Stabilization Work Plan was granted by the USEPA on 8/5/92. Development of the Stabilization Work Plan continued; the document was drafted, peer reviewed, and reviewed by CIBA-GEIGY personnel. Installation of the access platforms for the in-river monitoring well/piezometer clusters was completed. Submersible pumps needed for aquifer testing were installed in recovery wells RC-1 and RC-2. Recovery tests of newly installed monitoring wells and piezometers began and were completed; development of the vapor extraction wells began and was completed. Mobilization for groundwater sampling (e.g., bottle preparation, laboratory coordination) was completed. Groundwater from newly installed monitoring and recovery wells (MW-20S, MW-21S, MW-22S, MW-23S, MW-24S, MW-29S, MW-29D, MW-30S, MW-30D, MW-31S, MW-31D, RC-1, and RC-2) in the Production Area and the river was sampled; the samples were submitted for analysis of Appendix IX compounds, fingerprint compounds, treatability parameters, and major ions. Bench-scale treatability testing of selected groundwater samples continued. Other planning for stabilization continued.

*As agreed, the reporting period will be monthly through the fourth Friday of the month.

Phase II Environmental Assessment. Evaluation of the data collected in June 1992 was completed; a status report summarizing the results of the environmental assessment field investigations is presented in Attachment B.

Project Management. A teleconference was held on 7/29/92 between Woodward-Clyde and the Cranston POTW; the POTW confirmed receipt of all the information needed to approve the permit allowing discharge of pretreated water to the POTW, and the POTW requested the results of bench-scale treatability testing when the results become available. A meeting was held at Woodward-Clyde's Wayne, New Jersey office on 8/4/92 between CIBA-GEIGY, HydroQual, and Woodward-Clyde personnel to discuss the strategy and schedule for the Phase II Pawtuxet River investigation. A teleconference was held on 8/4/92 between CIBA-GEIGY, Woodward-Clyde, and the USEPA; it was decided that the strategy for the Phase II Pawtuxet River investigation will be presented to the USEPA on 9/9/92.

2.0 TASKS AND ACTIVITIES COMPLETED

The sampling and other activities (subtasks) that were completed are reported here.

2.1 Sampling Activities Completed

The following sampling activities were completed:

<u>Sampling Activity</u>	<u>Location(s)</u>	<u>Date(s) Sampled</u>	<u>No. of Samples</u>	<u>Date(s) Sent for Analysis</u>	<u>Analysis</u>
<i>Groundwater Sampling</i>	MW-20S	8/4/92	1	8/4/92	C*
	MW-21S	8/5/92	5†	8/5/92	C
	MW-22S	8/4/92	1	8/4/92	C
	MW-23S	8/4/92	1	8/4/92	C
	MW-24S	8/4/92	1	8/4/92	C
	MW-29S	8/6/92	1	8/6/92	C
	MW-29D	8/6/92	1	8/6/92	C
	MW-30S	8/6/92	1	8/6/92	C
	MW-30D	8/6/92	1	8/6/92	C
	MW-31S	8/6/92	1	8/6/92	C
	MW-31D	8/6/92	1	8/6/92	C
	RC-1	8/5/92	1	8/5/92	C
	RC-2	8/5/92	1	8/5/92	C

* C = chemical analyses included Appendix IX compounds, fingerprint compounds, treatability parameters, and major ions.

† The samples from MW-21S included four QA samples — field blank, duplicate, matrix spike, and matrix spike duplicate.

2.2 Other Activities Completed

The other activities (subtasks) completed during this reporting period were described in Section 1.0.

3.0 JEOPARDY TASKS (scheduled tasks not completed)

No tasks were in jeopardy as of 28 August 1992.

4.0 OTHER TASKS UNDERWAY (and on schedule)

The tasks that were underway (and on schedule as of 28 August 1992) were described in Section 1.0.

5.0 DATA OBTAINED

Groundwater level data have been obtained but have not yet been peer reviewed. Chemical data (analytes to be modeled) for the river surface water samples (collected at the six sampling stations) have been received but have not yet been peer reviewed. The validated analytical results for the surficial soils analyzed for PCBs are presented in Attachment A. Evaluation of the data collected in the environmental assessment field investigations was completed; a status report summarizing these results is presented in Attachment B.

6.0 PROBLEM AREAS

The resolved, new, potential (i.e., anticipated or possible), and outstanding (i.e., still unresolved) problem areas are reported here.

6.1 Resolved Problem Areas

No problem areas remained to be resolved during this reporting period.

6.2 New Problem Areas

No new problem areas were identified during this reporting period.

6.3 Potential Problem Areas

Two potential problem areas were identified during this reporting period.

Equipment Vendor Delayed Delivery of Pretreatment System

Review of the Problem. The primary equipment vendor for the groundwater pretreatment system was scheduled to deliver the necessary equipment in August; in August, the vendor notified CIBA-GEIGY that the equipment would not be delivered before November.

Plans for Resolution. Other vendors are being sought to supply the equipment needed. The equipment may need to be ordered from several vendors. If so, the schedule for installing the pilot pretreatment system could be affected.

A Temporary Permit or Exemption May Be Needed to Pretreat Groundwater

Review of the Problem. During aquifer testing, groundwater might be considered to be characteristic hazardous waste. If so, either a temporary permit will be needed to pretreat the groundwater, or CIBA-GEIGY must qualify for an exemption.

Plans for Resolution. Groundwater will be sampled and analyzed for TCLP during the 72-hour constant rate tests. Depending on the analytical results, CIBA-GEIGY will explore the possibility of qualifying for an exemption from RIDEM and/or the USEPA (if needed).

6.4 Outstanding Problem Areas

No problem areas remained unresolved during this reporting period.

7.0 SCHEDULE OF TASKS (next two months)

The projected schedule is provided here. It covers the tasks to be performed in the next two months (September and October 1992), along with other comments or considerations.

Target Date	Task#	Task	Comments/Considerations
ongoing	9	Project Management	
ongoing	10	Data Management	
ongoing	11	Project Administration	
ongoing	12	Quality Assurance	
ongoing	13	Health & Safety Assurance	

8.0 CHANGES IN WORK PLAN

No changes were made to the Work Plan during this reporting period.

9.0 OTHER COMMENTS

The plans going forward into September and October include:

- submitting the Stabilization Work Plan,
- beginning aquifer testing,
- installing and operating the pilot pretreatment system,
- performing the dual-phase extraction pilot test at SWMU-11,
- planning for stabilization activities, and
- additional planning for future investigations.

The following documents are appended:

- Attachment A — Validated Analytical Results for PCB Analysis of Surficial Soil Samples, and
- Attachment B — Status Report: Environmental Assessment Field Investigations.

ATTACHMENT A

Validated Analytical Results for PCB Analysis of Surficial Soil Samples

CIBA-GEIGY Facility
Cranston, Rhode Island

**CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS**

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-L48*II-1	Aroclor 1016	0.035 U	0.035 U
	Aroclor 1221	0.071 U	0.071 U
	Aroclor 1232	0.035 U	0.035 U
	Aroclor 1242	0.035 U	0.035 U
	Aroclor 1248	0.320	0.320
	Aroclor 1254	0.640	0.640
	Aroclor 1260	0.035 U	0.035 U
SS-J45*II-1	Aroclor 1016	3.700 U	3.700 R
	Aroclor 1221	7.400 U	7.400 R
	Aroclor 1232	3.700 U	3.700 R
	Aroclor 1242	3.700 U	3.700 R
	Aroclor 1248	19.000	19.000 J
	Aroclor 1254	32.000	32.000 J
	Aroclor 1260	3.700	3.700 R
SS-I43*II-1	Aroclor 1016	0.690 U	0.690 R
	Aroclor 1221	1.400 U	1.400 R
	Aroclor 1232	0.690 U	0.690 R
	Aroclor 1242	0.690 U	0.690 R
	Aroclor 1248	2.000	2.000 J
	Aroclor 1254	10.000	10.000 J
	Aroclor 1260	0.690 U	0.690 R
SS-044*II-1	Aroclor 1016	35.000 U	35.000 R
	Aroclor 1221	72.000 U	72.000 R
	Aroclor 1232	35.000 U	35.000 R
	Aroclor 1242	35.000 U	35.000 R
	Aroclor 1248	430.000	430.000 J
	Aroclor 1254	35.000 U	35.000 R
	Aroclor 1260	35.000 U	35.000 R
SS-M42*II-1	Aroclor 1016	3.800 U	3.800 R
	Aroclor 1221	7.700 U	7.700 R
	Aroclor 1232	3.800 U	3.800 R
	Aroclor 1242	3.800 U	3.800 R
	Aroclor 1248	28.000	28.000 J
	Aroclor 1254	61.000	61.000 J
	Aroclor 1260	3.800 U	3.800 R

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-Q42*II-1	Aroclor 1016	0.036 U	0.036 U
	Aroclor 1221	0.073 U	0.073 U
	Aroclor 1232	0.036 U	0.036 U
	Aroclor 1242	0.036 U	0.036 U
	Aroclor 1248	0.085	0.085
	Aroclor 1254	0.160	0.160
	Aroclor 1260	0.036 U	0.036 U
SS-Q38*II-1	Aroclor 1016	0.068 U	0.068 U
	Aroclor 1221	0.140 U	0.140 U
	Aroclor 1232	0.068 U	0.068 U
	Aroclor 1242	0.068 U	0.068 U
	Aroclor 1248	0.068 U	0.068 U
	Aroclor 1254	0.780	0.780
	Aroclor 1260	0.068 U	0.068 U
SS-U36*II-1	Aroclor 1016	1.800 U	1.800 R
	Aroclor 1221	3.700 U	3.700 R
	Aroclor 1232	1.800 U	1.800 R
	Aroclor 1242	1.800 U	1.800 R
	Aroclor 1248	4.100	4.100 J
	Aroclor 1254	31.000	31.000 J
	Aroclor 1260	1.800 U	1.800 R
SS-DUP1*II-1	Aroclor 1016	3.600 U	3.600 R
	Aroclor 1221	7.300 U	7.300 R
	Aroclor 1232	3.600 U	3.600 R
	Aroclor 1242	3.600 U	3.600 R
	Aroclor 1248	19.000	19.000 J
	Aroclor 1254	30.000	30.000 J
	Aroclor 1260	3.600 U	3.600 R

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-N35*II-1	Aroclor 1016	0.034 U	0.034 R
	Aroclor 1221	0.070 U	0.070 R
	Aroclor 1232	0.034 U	0.034 R
	Aroclor 1242	0.034 U	0.034 R
	Aroclor 1248	0.020 J	0.020 J
	Aroclor 1254	0.310	0.310 J
	Aroclor 1260	0.034 U	0.034 R
SS-S34*II-1	Aroclor 1016	2.000 U	2.000 R
	Aroclor 1221	4.000 U	4.000 R
	Aroclor 1232	2.000 U	2.000 R
	Aroclor 1242	2.000 U	2.000 R
	Aroclor 1248	4.400	4.400 J
	Aroclor 1254	35.000	35.000 J
	Aroclor 1260	2.000 U	2.000 R
SS-W32*II-1	Aroclor 1016	0.042 U	0.042 U
	Aroclor 1221	0.085 U	0.085 U
	Aroclor 1232	0.042 U	0.042 U
	Aroclor 1242	0.042 U	0.042 U
	Aroclor 1248	0.042 U	0.042 U
	Aroclor 1254	0.055	0.055
	Aroclor 1260	0.042 U	0.042 U
SS-R31*II-1	Aroclor 1016	0.034 U	0.034 U
	Aroclor 1221	0.068 U	0.068 U
	Aroclor 1232	0.034 U	0.034 U
	Aroclor 1242	0.034 U	0.034 U
	Aroclor 1248	0.034 U	0.034 U
	Aroclor 1254	0.210	0.210
	Aroclor 1260	0.034 U	0.034 U

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-G38*II-1	Aroclor 1016	1.900 U	1.900 R
	Aroclor 1221	3.900 U	3.900 R
	Aroclor 1232	1.900 U	1.900 R
	Aroclor 1242	1.900 U	1.900 R
	Aroclor 1248	5.300	5.300 J
	Aroclor 1254	36.000	36.000 J
	Aroclor 1260	1.900 U	1.900 R
SS-D37*II-1	Aroclor 1016	3.700 U	3.700 R
	Aroclor 1221	7.600 U	7.600 R
	Aroclor 1232	3.700 U	3.700 R
	Aroclor 1242	3.700 U	3.700 R
	Aroclor 1248	5.500	5.500 J
	Aroclor 1254	64.000	64.000 J
	Aroclor 1260	3.700 U	3.700 R
SS-E35*II-1	Aroclor 1016	3.700 U	3.700 R
	Aroclor 1221	7.500 U	7.500 R
	Aroclor 1232	3.700 U	3.700 R
	Aroclor 1242	3.700 U	3.700 R
	Aroclor 1248	5.200	5.200 J
	Aroclor 1254	58.000	58.000 J
	Aroclor 1260	3.700 U	3.700 R
SS-E31*II-1	Aroclor 1016	3.600 U	3.600 R
	Aroclor 1221	7.400 U	7.400 R
	Aroclor 1232	3.600 U	3.600 R
	Aroclor 1242	3.600 U	3.600 R
	Aroclor 1248	6.400	6.400 J
	Aroclor 1254	47.000	47.000 J
	Aroclor 1260	3.600 U	3.600 R

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-N29*II-1	Aroclor 1016	1.800 U	1.800 R
	Aroclor 1221	3.600 U	3.600 R
	Aroclor 1232	1.800 U	1.800 R
	Aroclor 1242	1.800 U	1.800 R
	Aroclor 1248	3.400	3.400 J
	Aroclor 1254	25.000	25.000 J
	Aroclor 1260	1.800 U	1.800 R
SS-K26*II-1	Aroclor 1016	0.170 U	0.170 U
	Aroclor 1221	0.350 U	0.350 U
	Aroclor 1232	0.170 U	0.170 U
	Aroclor 1242	0.170 U	0.170 U
	Aroclor 1248	0.170 U	0.170 U
	Aroclor 1254	3.800	3.800
	Aroclor 1260	0.170 U	0.170 U
SS-F26*II-1	Aroclor 1016	3.700 U	3.700 R
	Aroclor 1221	7.600 U	7.600 R
	Aroclor 1232	3.700 U	3.700 R
	Aroclor 1242	3.700 U	3.700 R
	Aroclor 1248	4.800	4.800 J
	Aroclor 1254	74.000	74.000 J
	Aroclor 1260	3.700 U	3.700 R
SS-E23*II-1	Aroclor 1016	0.750 U	0.750 U
	Aroclor 1221	1.500 U	1.500 U
	Aroclor 1232	0.750 U	0.750 U
	Aroclor 1242	0.750 U	0.750 U
	Aroclor 1248	1.300	1.300
	Aroclor 1254	27.000	27.000
	Aroclor 1260	0.750 U	0.750 U

**CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS**
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-M22*II-1	Aroclor 1016	3.600 U	3.600 R
	Aroclor 1221	7.300 U	7.300 R
	Aroclor 1232	3.600 U	3.600 R
	Aroclor 1242	3.600 U	3.600 R
	Aroclor 1248	3.600 U	3.600 R
	Aroclor 1254	37.000	37.000 J
	Aroclor 1260	3.600 U	3.600 R
SS-Q22*II-1	Aroclor 1016	3.800 U	3.800 R
	Aroclor 1221	7.700 U	7.700 R
	Aroclor 1232	3.800 U	3.800 R
	Aroclor 1242	3.800 U	3.800 R
	Aroclor 1248	3.800 U	3.800 R
	Aroclor 1254	35.000	35.000 J
	Aroclor 1260	3.800 U	3.800 R
SS-017*II-1	Aroclor 1016	0.370 U	0.370 U
	Aroclor 1221	0.740 U	0.740 U
	Aroclor 1232	0.370 U	0.370 U
	Aroclor 1242	0.370 U	0.370 U
	Aroclor 1248	6.100	6.100
	Aroclor 1254	11.000	11.000
	Aroclor 1260	0.370 U	0.370 U
SS-L16*II-1	Aroclor 1016	0.180 U	0.180 U
	Aroclor 1221	0.360 U	0.360 U
	Aroclor 1232	0.180 U	0.180 U
	Aroclor 1242	0.180 U	0.180 U
	Aroclor 1248	0.300	0.300
	Aroclor 1254	0.750	0.750
	Aroclor 1260	0.180 U	0.180 U

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-N13*II-1	Aroclor 1016	3.600 U	3.600 R
	Aroclor 1221	7.300 U	7.300 R
	Aroclor 1232	3.600 U	3.600 R
	Aroclor 1242	3.600 U	3.600 R
	Aroclor 1248	5.900	5.900 J
	Aroclor 1254	26.000	26.000 J
	Aroclor 1260	3.600 U	3.600 R
SS-B2*II-1	Aroclor 1016	0.038 U	0.038 U
	Aroclor 1221	0.076 U	0.076 U
	Aroclor 1232	0.038 U	0.038 U
	Aroclor 1242	0.038 U	0.038 U
	Aroclor 1248	0.350	0.350
	Aroclor 1254	1.700	1.700
	Aroclor 1260	0.038 U	0.038 U
SS-B7*II-1	Aroclor 1016	0.037 U	0.037 U
	Aroclor 1221	0.074 U	0.074 U
	Aroclor 1232	0.037 U	0.037 U
	Aroclor 1242	0.037 U	0.037 U
	Aroclor 1248	0.051	0.051
	Aroclor 1254	0.340	0.340
	Aroclor 1260	0.037 U	0.037 U
SS-DUP-2*II-1	Aroclor 1016	1.700 U	1.700 R
	Aroclor 1221	3.500 U	3.500 R
	Aroclor 1232	1.700 U	1.700 R
	Aroclor 1242	1.700 U	1.700 R
	Aroclor 1248	5.600	5.600 J
	Aroclor 1254	31.000	31.000 J
	Aroclor 1260	1.700 U	1.700 R

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-J21*II-1	Aroclor 1016	0.035 U	0.035 U
	Aroclor 1221	0.071 U	0.071 U
	Aroclor 1232	0.035 U	0.035 U
	Aroclor 1242	0.035 U	0.035 U
	Aroclor 1248	0.220	0.220 J
	Aroclor 1254	0.500	0.500
	Aroclor 1260	0.035 U	0.035 U
SS-K14*II-1	Aroclor 1016	0.190 U	0.190 U
	Aroclor 1221	0.380 U	0.380 U
	Aroclor 1232	0.190 U	0.190 U
	Aroclor 1242	0.190 U	0.190 U
	Aroclor 1248	0.420	0.420
	Aroclor 1254	1.400	1.400
	Aroclor 1260	0.190 U	0.190 U
SS-C20*II-1	Aroclor 1016	0.037 U	0.037 U
	Aroclor 1221	0.074 U	0.074 U
	Aroclor 1232	0.037 U	0.037 U
	Aroclor 1242	0.037 U	0.037 U
	Aroclor 1248	0.120	0.120
	Aroclor 1254	0.600	0.600
	Aroclor 1260	0.037 U	0.037 U
SS-C16*II-1	Aroclor 1016	3.700 U	3.700 R
	Aroclor 1221	7.500 U	7.500 R
	Aroclor 1232	3.700 U	3.700 R
	Aroclor 1242	3.700 U	3.700 R
	Aroclor 1248	15.000	15.000 J
	Aroclor 1254	84.000	84.000 J
	Aroclor 1260	3.700 U	3.700 R

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-J11*II-1	Aroclor 1016	0.350 U	0.350 U
	Aroclor 1221	0.720 U	0.720 U
	Aroclor 1232	0.350 U	0.350 U
	Aroclor 1242	0.350 U	0.350 U
	Aroclor 1248	0.350 U	0.350 U
	Aroclor 1254	4.500	4.500
	Aroclor 1260	0.350 U	0.350 U
SS-R12*II-1	Aroclor 1016	0.035 U	0.035 U
	Aroclor 1221	0.072 U	0.072 U
	Aroclor 1232	0.035 U	0.035 U
	Aroclor 1242	0.035 U	0.035 U
	Aroclor 1248	0.035 U	0.035 U
	Aroclor 1254	0.860	0.860
	Aroclor 1260	0.035 U	0.035 U
SS-S15*II-1	Aroclor 1016	0.035 U	0.035 U
	Aroclor 1221	0.072 U	0.072 U
	Aroclor 1232	0.035 U	0.035 U
	Aroclor 1242	0.035 U	0.035 U
	Aroclor 1248	0.035 U	0.035 U
	Aroclor 1254	1.100	1.100
	Aroclor 1260	0.035 U	0.035 U
SS-L1*II-1	Aroclor 1016	0.350 U	0.350 UJ
	Aroclor 1221	0.710 U	0.710 UJ
	Aroclor 1232	0.350 U	0.350 UJ
	Aroclor 1242	0.350 U	0.350 UJ
	Aroclor 1248	0.350 U	0.350 UJ
	Aroclor 1254	4.300	4.300 J
	Aroclor 1260	0.350 U	0.350 UJ

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-07*II-1	Aroclor 1016	0.034 U	0.034 U
	Aroclor 1221	0.069 U	0.069 U
	Aroclor 1232	0.034 U	0.034 U
	Aroclor 1242	0.034 U	0.034 U
	Aroclor 1248	0.034 U	0.034 U
	Aroclor 1254	0.460	0.460
	Aroclor 1260	0.034 U	0.034 U
SS-Z28*II-1	Aroclor 1016	0.180 U	0.180 U
	Aroclor 1221	0.370 U	0.370 U
	Aroclor 1232	0.180 U	0.180 U
	Aroclor 1242	0.180 U	0.180 U
	Aroclor 1248	0.180 U	0.180 U
	Aroclor 1254	1.800	1.800
	Aroclor 1260	0.180 U	0.180 U
SS-AF26*II-1	Aroclor 1016	0.170 U	0.170 U
	Aroclor 1221	0.350 U	0.350 U
	Aroclor 1232	0.170 U	0.170 U
	Aroclor 1242	0.170 U	0.170 U
	Aroclor 1248	0.370	0.370
	Aroclor 1254	5.200	5.200
	Aroclor 1260	0.170 U	0.170 U
SS-U28*II-1	Aroclor 1016	0.350 U	0.350 U
	Aroclor 1221	0.710 U	0.710 U
	Aroclor 1232	0.350 U	0.350 U
	Aroclor 1242	0.350 U	0.350 U
	Aroclor 1248	0.350 U	0.350 U
	Aroclor 1254	5.600	5.600
	Aroclor 1260	0.350 U	0.350 U

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-V23*II-1	Aroclor 1016	0.036 U	0.036 U
	Aroclor 1221	0.074 U	0.074 U
	Aroclor 1232	0.036 U	0.036 U
	Aroclor 1242	0.036 U	0.036 U
	Aroclor 1248	0.036 U	0.036 U
	Aroclor 1254	0.400	0.400
	Aroclor 1260	0.036 U	0.036 U
SS-T20*II-1	Aroclor 1016	3.700 U	3.700 R
	Aroclor 1221	7.600 U	7.600 R
	Aroclor 1232	3.700 U	3.700 R
	Aroclor 1242	3.700 U	3.700 R
	Aroclor 1248	3.700 U	3.700 R
	Aroclor 1254	58.000	58.000 J
	Aroclor 1260	3.700 U	3.700 R
SS-Y21*II-1	Aroclor 1016	0.360 U	0.360 U
	Aroclor 1221	0.730 U	0.730 U
	Aroclor 1232	0.360 U	0.360 U
	Aroclor 1242	0.360 U	0.360 U
	Aroclor 1248	0.650	0.650
	Aroclor 1254	6.800	6.800
	Aroclor 1260	0.360 U	0.360 U
SS-AB24*II-1	Aroclor 1016	0.037 U	0.037 U
	Aroclor 1221	0.074 U	0.074 U
	Aroclor 1232	0.037 U	0.037 U
	Aroclor 1242	0.037 U	0.037 U
	Aroclor 1248	0.230	0.230
	Aroclor 1254	0.400	0.400
	Aroclor 1260	0.037 U	0.037 U

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-AG23*II-1	Aroclor 1016	1.800 U	1.800 R
	Aroclor 1221	3.600 U	3.600 R
	Aroclor 1232	1.800 U	1.800 R
	Aroclor 1242	1.800 U	1.800 R
	Aroclor 1248	2.000	2.000 J
	Aroclor 1254	19.000	19.000 J
	Aroclor 1260	1.800 U	1.800 R
SS-U17*II-1	Aroclor 1016	0.036 U	0.036 U
	Aroclor 1221	0.072 U	0.072 U
	Aroclor 1232	0.036 U	0.036 U
	Aroclor 1242	0.036 U	0.036 U
	Aroclor 1248	0.036 U	0.036 U
	Aroclor 1254	0.036 U	0.036 U
	Aroclor 1260	0.036 U	0.036 U
SS-W13*II-1	Aroclor 1016	0.034 U	0.034 U
	Aroclor 1221	0.069 U	0.069 U
	Aroclor 1232	0.034 U	0.034 U
	Aroclor 1242	0.034 U	0.034 U
	Aroclor 1248	0.034 U	0.034 U
	Aroclor 1254	0.068	0.068 J
	Aroclor 1260	0.034 U	0.034 U
SS-Y15*II-1	Aroclor 1016	0.360 U	0.360 U
	Aroclor 1221	0.740 U	0.740 U
	Aroclor 1232	0.360 U	0.360 U
	Aroclor 1242	0.360 U	0.360 U
	Aroclor 1248	0.360 U	0.360 U
	Aroclor 1254	7.600	7.600
	Aroclor 1260	0.360 U	0.360 U

CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)

Sample Number	PCB Compounds	Laboratory Result (mg/Kg)	Validated Result (mg/Kg)
SS-AB21*II-1	Aroclor 1016	1.900 U	1.900 R
	Aroclor 1221	3.800 U	3.800 R
	Aroclor 1232	1.900 U	1.900 R
	Aroclor 1242	1.900 U	1.900 R
	Aroclor 1248	1.900 U	1.900 R
	Aroclor 1254	25.000	25.000 J
	Aroclor 1260	1.900 U	1.900 R
SS-AE11*II-1	Aroclor 1016	0.034 U	0.034 U
	Aroclor 1221	0.070 U	0.070 U
	Aroclor 1232	0.034 U	0.034 U
	Aroclor 1242	0.034 U	0.034 U
	Aroclor 1248	0.034 U	0.034 U
	Aroclor 1254	0.310	0.310
	Aroclor 1260	0.034 U	0.034 U
SS-AJ15*II-1	Aroclor 1016	0.035 U	0.035 U
	Aroclor 1221	0.071 U	0.071 U
	Aroclor 1232	0.035 U	0.035 U
	Aroclor 1242	0.035 U	0.035 U
	Aroclor 1248	0.072	0.072
	Aroclor 1254	0.860	0.860
	Aroclor 1260	0.035 U	0.035 U
SS-DUP3*II-1	Aroclor 1016	0.035 U	0.035 U
	Aroclor 1221	0.070 U	0.070 U
	Aroclor 1232	0.035 U	0.035 U
	Aroclor 1242	0.035 U	0.035 U
	Aroclor 1248	0.035 U	0.035 U
	Aroclor 1254	0.043	0.043 J
	Aroclor 1260	0.035 U	0.035 U

**CIBA-GEIGY CORPORATION
CRANSTON, RHODE ISLAND
SURFICIAL SOIL RESULTS
(continued)**

Data Qualifier Definitions

For this document (attachment to Surficial Soil Results), the following qualifiers are defined below:

- U** - The compound was analyzed for but was not detected. The numerical value presented is the sample quantitation limit.
- J** - The compound concentration is estimated.
- R** - The data were rejected during data validation (compound may or may not be present).
- UJ** - The compound was analyzed for, but was not detected. The sample quantitation limit is estimated.

ATTACHMENT B

Status Report: Environmental Assessment Field Investigations

CIBA-GEIGY Facility
Cranston, Rhode Island

**STATUS REPORT
ENVIRONMENTAL ASSESSMENT
FIELD INVESTIGATIONS**

JUNE 1992

1.0 Introduction

Enclosed is a summary of the following on-site activities conducted during June 2-4, 1992. These activities include:

- **Benthic Macroinvertebrate Survey**
- **In-Situ Water Quality Monitoring**
- **Determination of Sediment Characteristics**

Laboratory analysis of samples was conducted during June 4 - July 10, 1992.

2.0 Benthic Macroinvertebrate Analysis

Benthic macroinvertebrate populations were sampled through the use of a Ponar sediment dredge at 17 stations on the Pawtuxet River, and two stations in the WWTA pond. Sample stations are illustrated on Figure 1. Five replicates were collected at each station. Samples were sieved through a U.S. Standard No. 35 sieve upon collection. Three replicate samples from each station were sorted and organisms identified and enumerated at the IT Edison Benthic Laboratory. The remaining two replicate samples from each station were archived pending the need for further analysis. Table 1 is a species list of organisms identified from Pawtuxet River and WWTA Pond samples. The number of taxa identified at each station ranged from 7 to 21.

Most samples were dominated by tubificid worms and chironomid larvae. Within the Family Chironomidae, 16 genera were identified from this survey. The number of organisms identified in samples from each station ranged from 444 to 22,048.

3.0 In-Situ Water Quality Analysis

Coincident with the benthic sampling, in-situ water quality parameters were measured at each station with the Hydrolab® Surveyor II water quality analyzer. The results of these measurements are as follows:

Parameter	Range
Dissolved Oxygen (mg/L)	5.51 - 9.54
Temperature (°C)	14.39 - 18.87
Conductivity (mmhos/cm)	0.188 - 0.294
pH (units)	5.82 - 7.34
Oxidation-reduction potential (volts)	0.089 - 0.182
Flow (m/sec)	0.20 - 2.3
Depth (m)*	0.6 - 2.3

*Excludes WWTA pond which was 0.1m at BP1M, and BP2M.

4.0 Sediment Laboratory Analysis

Sub-samples for particle size, Total Organic Carbon (TOC), Ammonia-N and Total Solids were collected at each sampling station. The results are as follows:

<i>Parameter</i>	<i>Range</i>
Ammonia-N (mg/kg)	1.2 - 170
TOC (mg/kg)	<1,300 - 100,000
Total Solids (Percent)	11-82
Sand (Percent)	29.8 - 99.6
Silt (Percent)	0.1 - 43.7
Clay (Percent)	0.2 - 31.9

5.0 Summary

The substrate of the stretch of the Pawtuxet River investigated in this study was consistently dominated by sand and coarser particles. Silt and clay were minor components. The benthic communities inhabiting this substrate were dominated by tubificid worms and chironomid larvae at all stations surveyed including stations located upstream, downstream, and in the vicinity of the CIBA-GEIGY site. Multi-variate analysis of the benthic community data is part of the on-going investigations.

TABLE 1
BENTHIC MACROINVERTEBRATE TAXA
INHABITING THE PAWTUXET RIVER
IN THE VICINITY OF CIBA-GEIGY SITE, CRANSTON, RI
JUNE 2-4, 1992

CLASS	ORDER	FAMILY	GENUS	SPECIES	COMMON NAME	LIFE STAGE
OLIGOCHAETA	TUBIFICIDA	NAIDIDAE TUBIFICIDAE	<i>Nais</i> UNKNOWN	UNKNOWN	AQUATIC WORM TUBIFEX WORM	ADULT ADULT
HIRUDINEA	ARHYNCHOBDELLIDA	UNKNOWN	UNKNOWN	UNKNOWN	AQUATIC WORM	COCOON
TURBELLARIA	RHYNCHOBDELLIDA	ERPOBDELLIDAE	<i>Erpobdella</i>	UNKNOWN	LEECH	ADULT
INSECTA	TRICLADIDA	GLOSSIPHONIDAE	<i>Hellobdella</i>	<i>stagnalis</i>	FLATWORM	JUVENILE
	EPHEMEROPTERA	PLANARIIDAE	<i>Cura</i>	UNKNOWN	MAYFLY	ADULT
	ODONATA	EPHEMERELLIDAE	<i>Ephemerella</i>	UNKNOWN	DRAGONFLY	NYMPH
	HEMIPTERA	CORDULIIDAE	<i>Helocordula</i>	UNKNOWN	DAMSELFLY	NYMPH
	TRICHOPTERA	COENAGRIONIDAE	<i>Argia</i>	UNKNOWN	WATER STRIDER	ADULT
	COLEOPTERA	GERRIDAE	<i>Hydropsyche</i>	UNKNOWN	CADDISFLY	LARVA
		HYDROPSYCHIDAE	UNKNOWN	UNKNOWN	CADDISFLY	LARVA
		UNKNOWN	UNKNOWN	UNKNOWN	BEETLE	LARVA
		DYTISCIDAE	<i>Agabus</i>	UNKNOWN	BEETLE	LARVA
		HALIPLIDAE	UNKNOWN	UNKNOWN	BEETLE	LARVA
		NOTERIDAE	<i>Haliplus</i>	UNKNOWN	BEETLE	LARVA
		HYDROPHILIDAE	UNKNOWN	UNKNOWN	BEETLE	LARVA
		STRATIOMYIDAE	<i>Bergosus</i>	UNKNOWN	BEETLE	LARVA
		TABANIDAE	UNKNOWN	UNKNOWN	SOLDIERFLY	LARVA
		CERATOPOGONIDAE	UNKNOWN	UNKNOWN	HORSEFLY	LARVA
		CHIRONOMIDAE	UNKNOWN	UNKNOWN	BITING MIDGE	LARVA
		CHIRONOMINAE*	<i>Chironomus</i>	UNKNOWN	MIDGE	LARVA
			<i>Dictyotendipes</i>	<i>nervosus</i>	MIDGE	LARVA
			<i>Glyptotendipes</i>	UNKNOWN	MIDGE	LARVA
			<i>Kiefferulus</i>	UNKNOWN	MIDGE	LARVA
			<i>Parachironomus</i>	UNKNOWN	MIDGE	LARVA
			<i>Polypedilum</i>	UNKNOWN	MIDGE	LARVA
			<i>Pseudochironomus</i>	UNKNOWN	MIDGE	LARVA
			<i>Tribelos</i>	UNKNOWN	MIDGE	LARVA
		DIAMESINAE*	<i>Diamesa</i>	UNKNOWN	MIDGE	LARVA
		ORTHOCLADIINAE*	<i>Pseudodiamesa</i>	UNKNOWN	MIDGE	LARVA
			<i>Cricotopus</i>	UNKNOWN	MIDGE	LARVA
			<i>Eukiefferiella</i>	UNKNOWN	MIDGE	LARVA
			UNKNOWN	UNKNOWN	MIDGE	LARVA
		PRODIAMESINAE*	<i>Monodiamesa</i>	UNKNOWN	MIDGE	LARVA
		TANYPODINAE*	<i>Djalmabatista</i>	UNKNOWN	MIDGE	LARVA
			<i>Procladius</i>	UNKNOWN	MIDGE	LARVA
			<i>Psectrotanypus</i>	UNKNOWN	MIDGE	LARVA
		CHIRONOMIDAE	UNKNOWN	UNKNOWN	MIDGE	LARVA
		CHIRONOMIDAE	UNKNOWN	UNKNOWN	MIDGE	LARVA
		PTYCHOPTERIDAE	<i>Bittacomorpha</i>	UNKNOWN	PHANTOM CRANEFLY	PUPA
			<i>Ptychoptera</i>	UNKNOWN	PHANTOM CRANEFLY	LARVA
			UNKNOWN	UNKNOWN	CRANEFLY	LARVA
	DIPTERA	TIPULIDAE	UNKNOWN	UNKNOWN	FLY	LARVA
	DIPTERA	UNKNOWN	UNKNOWN	UNKNOWN	FLY	PUPA
	DIPTERA	UNKNOWN	UNKNOWN	UNKNOWN	FLY	ADULT
CRUSTACEA	AMPHIPODA	GAMMARIDAE	<i>Gammarus</i>	<i>fasciatus</i>	SIDESWIMMER	ADULT
		TALITRIDAE	<i>Hyalella</i>	UNKNOWN	SIDESWIMMER	ADULT
		UNKNOWN	UNKNOWN	UNKNOWN	SIDESWIMMER	ADULT
		CAMBARIDAE	<i>Procamarbus</i>	UNKNOWN	CRAYFISH	ADULT
	DECAPODA	UNKNOWN	UNKNOWN	UNKNOWN	CRAYFISH	ADULT
GASTROPODA	ISOPODA	ASELLIDAE	<i>Caecidotea</i>	UNKNOWN	AQUATIC SOW BUG	ADULT
		ANCYLIDAE	<i>Ferrissia</i>	UNKNOWN	LIMPET	ADULT
		PHYSIDAE	<i>Physella</i>	UNKNOWN	SNAIL	ADULT
		PLANORBIDAE	<i>Heliosoma</i>	UNKNOWN	SNAIL	ADULT
		UNKNOWN	<i>Promenetus</i>	UNKNOWN	SNAIL	ADULT
		SPHARIIDAE	UNKNOWN	UNKNOWN	SNAIL	ADULT
BIVALVA	UNKNOWN	<i>Musculium</i>	UNKNOWN	UNKNOWN	CLAM	ADULT
	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	CLAM	ADULT

* Indicates subfamily of Chironomidae

